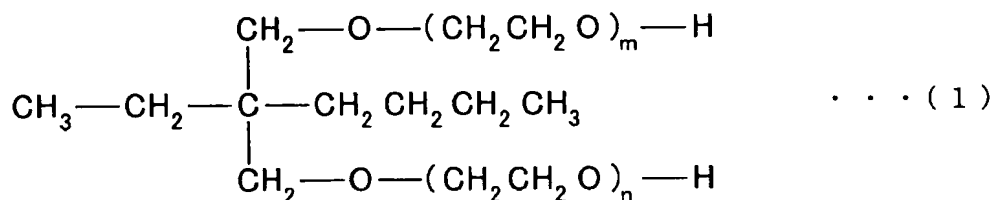


CLAIMS

1. A recording liquid deposited as a liquid droplet on a support for printing thereon, comprising

a dye, a solvent for dispersing the dye, and a surfactant containing an organic compound represented by the following chemical formula 1:

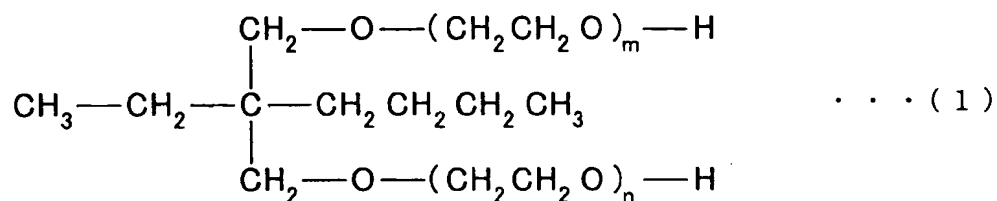


where m and n are integers not less than 1.

2. The recording liquid according to claim 1 wherein the sum of m and n in the chemical formula 1 for said surfactant is not less than 2 and not larger than 30.
3. The recording liquid according to claim 1 wherein said surfactant is contained in an amount not less than 0.05 wt% and not larger than 10 wt%.
4. The recording liquid according to claim 1 wherein, at 25°C, the surface tension is not less than 30 N/m and not larger than 60 N/m and the viscosity is not larger than 15 mPs·S.
5. A liquid cartridge loaded on a liquid emission device and operating as a supply source for a recording liquid held in a vessel for a liquid, said liquid emission device emitting said recording liquid as a liquid droplet for deposition and

recording on a support, wherein

said recording liquid contains a dye, a solvent for dispersing the dye, and a surfactant containing an organic compound represented by the following chemical formula 1:



wherein m and n are integers not less than 1.

6. The liquid cartridge according to claim 5 wherein said surfactant is contained in an amount not less than 0.05 wt% and not larger than 10 wt%.

7. The liquid cartridge according to claim 5 wherein said liquid vessel includes a liquid container containing said recording liquid, a connecting part which, when loaded on said liquid emission device, connects said recording liquid, contained in said liquid container, to said liquid emission device, so that said recording liquid, contained in said liquid container, can be supplied to said liquid emission device, an external communication opening for taking from outside an amount of air corresponding to a decrease in the amount of said recording liquid in said liquid container brought about by supply of said recording liquid from said liquid container to said liquid emission device, an air inlet duct for establishing communication between said liquid container and said external communication

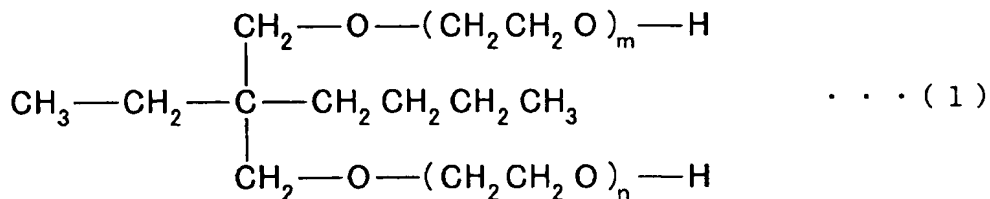
opening for introducing air taken via said external communication opening into said liquid container, and a reservoir located between said external communication opening and said air inlet duct for storing said recording liquid flowing out from said liquid container.

8. A device for liquid emission comprising

emission means including a liquid chamber for storing a recording liquid, a supply unit for supplying said recording liquid to said liquid chamber, one or more pressurizing units provided in said liquid chamber for pressurizing said recording liquid stored in said liquid chamber, and an emission opening for emitting said recording liquid, pressurized by said pressurizing means, from each liquid chamber in a state of a liquid droplet to the major surface of a support;

a liquid cartridge connected to said emission means and operating as a supply source for supplying said recording liquid to said supply unit, and emission controlling means for controlling the driving of said pressurizing unit;

said recording liquid containing a dye, a solvent for dispersing the dye, and a surfactant containing an organic compound represented by the following chemical formula 1:



where m and n are integers not less than 1.

9. The liquid emission device according to claim 8 wherein said surfactant is contained in an amount not less than 0.05 wt% and not larger than 10 wt%.

10. The liquid emission device according to claim 8 wherein said emission controlling means supplies the pulse current to said pressurizing unit to control the pressurizing unit, with the frequency of the pulse current supplied to said pressurizing unit being not less than 1 kHz.

11. The liquid emission device according to claim 10 wherein the frequency of the pulse current supplied to said pressurizing unit is not less than 3 kHz.

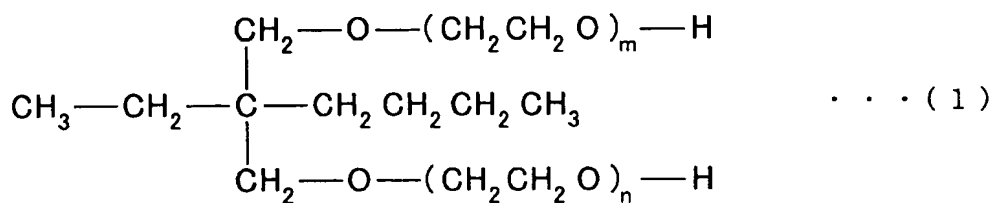
12. The liquid emission device according to claim 8 wherein a plurality of said pressurizing units are provided in a liquid chamber of said emission means and wherein said emission controlling means controls the driving of each pressurizing unit to control the angle of emission in emitting said liquid droplet from said emission opening.

13. The liquid emission device according to claim 8 wherein said emission openings of said emission means are arrayed substantially in a line.

14. A method for liquid emission by a liquid emitting device comprising
emission means including a liquid chamber for storing a recording liquid, a supply unit for supplying said recording liquid to said liquid chamber, one or more pressurizing units provided in said liquid chamber for pressurizing said recording liquid stored in said liquid chamber, and an emission opening for emitting said

recording liquid, pressurized by said pressurizing means, from each liquid chamber to the major surface of a support, in a state of a liquid droplet, a liquid cartridge connected to said emission means and operating as a supply source for supplying said recording liquid to said supply unit, and emission controlling means for controlling the driving of said pressurizing unit; wherein,

as said recording liquid, a liquid mixture containing a dye, a solvent for dispersing the dye, and a surfactant containing an organic compound represented by the following chemical formula 1:



is used, where m and n are integers not less than 1.

15. The liquid emission method according to claim 14 wherein said surfactant is contained in an amount not less than 0.05 wt% and not larger than 10 wt%.

16. The liquid emission method according to claim 14 wherein said emission controlling means supplies the pulse current to said pressurizing unit to control the pressurizing unit, with the frequency of the pulse current supplied to said pressurizing unit being not less than 1 kHz.

17. The liquid emission method according to claim 16 wherein said emission controlling means supplies the pulse current as the frequency of the pulse current

supplied to said pressurizing unit is set to not less than 3 kHz.

18. The liquid emission method according to claim 14 wherein

a plurality of said pressure generating elements are provided in the liquid chamber of said emission means; and wherein

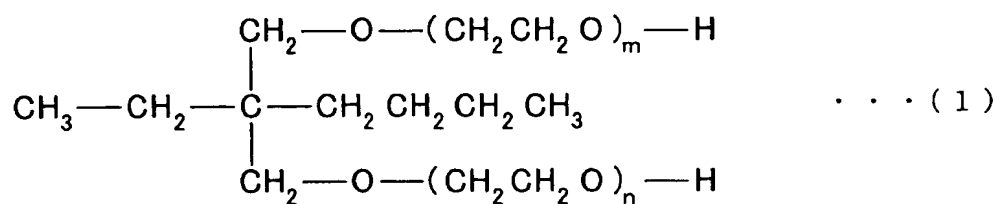
said pressurizing unit controls the driving of each pressurizing unit to control the angle of emission of said liquid droplets from said emission opening.

19. The liquid emission method according to claim 14 wherein

a plurality of emission openings of said emission means are arranged side-by-side substantially in a line.

20. A recording liquid deposited on a support in the state of a liquid droplet for printing thereon; wherein

said recording liquid contains a dye, a solvent for dispersing the dye, a surfactant containing an organic compound represented by the following chemical formula 1:

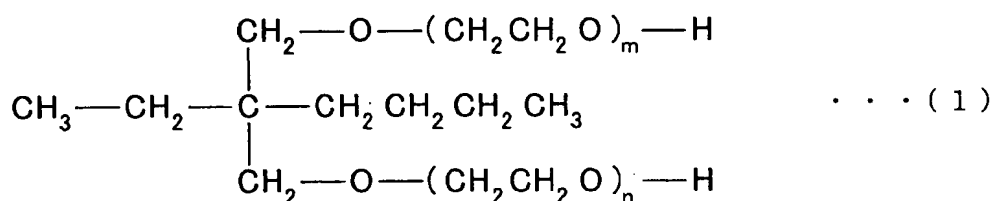


where m and n are integers not less than 1, and a glycol ether having the vapor pressure at 20 °C not larger than 0.1 mmHg and the surface tension not larger than 35 mN/m.

21. The recording liquid according to claim 20 wherein said surfactant is contained in an amount not less than 0.1 wt% and not larger than 5.0 wt% and wherein said glycol ether is contained in an amount not less than 1 wt% and not larger than 20 wt%.

22. A liquid cartridge loaded on a liquid emission device and operating as a supply source for a recording liquid held in a vessel for a liquid, said liquid emission device emitting said recording liquid as a liquid droplet for deposition and recording on a support, wherein

said recording liquid contains a dye, a solvent for dispersing the dye, a surfactant containing an organic compound represented by the chemical formula 1:



where m and n are integers not less than 1, and a glycol ether having the vapor pressure at 20 °C not larger than 0.1 mmHg and the surface tension not larger than 35 mN/m.

23. The liquid cartridge according to claim 22 wherein said recording liquid is contained in an amount not less than 0.1 wt% and not larger than 5.0 wt% based on the weight of the total liquid and wherein said glycol ether is contained in an amount not less than 1 wt% and not larger than 20 wt% based on the total weight of

the liquid.

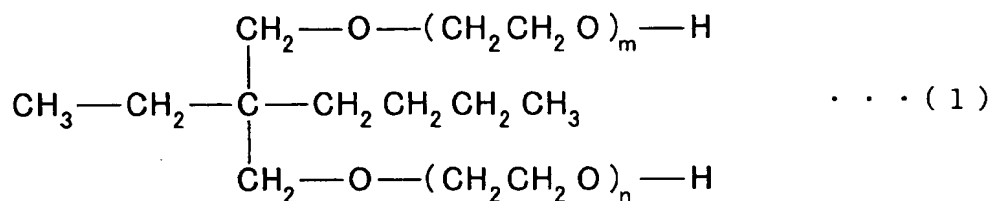
24. A liquid emission device comprising

emission means including a liquid chamber for storing a recording liquid, a supply unit for supplying said recording liquid to said liquid chamber, one or more pressurizing units provided in said liquid chamber for pressurizing said recording liquid stored in said liquid chamber, and an emission opening for emitting said recording liquid, pressurized by said pressurizing means, from each liquid chamber in a state of a liquid droplet to the major surface of a support;

a liquid cartridge connected to said emission means and operating as a supply source for supplying said recording liquid to said supply unit, and

emission controlling means for controlling the driving of said pressurizing unit;

said recording liquid containing a dye, a solvent for dispersing the dye, a surfactant containing an organic compound represented by the following chemical formula 1:



where m and n are integers not less than 1, and a glycol ether having the vapor pressure at 20 °C not larger than 0.1 mmHg and the surface tension not larger than

35 mN/m.

25. The liquid emission device according to claim 24 wherein said recording liquid is contained in an amount not less than 0.1 wt% and not larger than 5.0 wt% based on the weight of the total liquid and wherein said glycol ether is contained in an amount not less than 1 wt% and not larger than 20 wt% based on the total weight of the liquid.

26. The liquid emission device according to claim 24 wherein

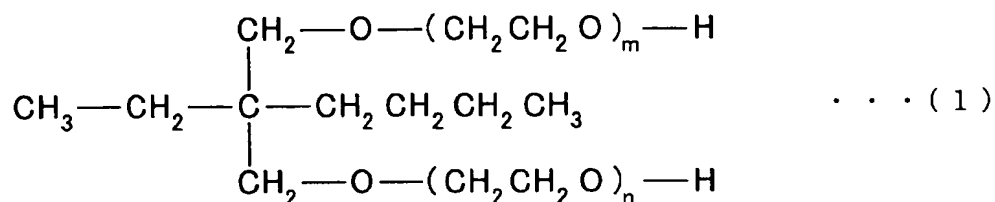
a plurality of emission openings of said emission means are arranged side-by-side substantially in a line.

27. A method for liquid emission by a liquid emitting device comprising

emission means including a liquid chamber for storing a recording liquid, a supply unit for supplying said recording liquid to said liquid chamber, one or more pressurizing units provided in said liquid chamber for pressurizing said recording liquid stored in said liquid chamber, and an emission opening for emitting said recording liquid, pressurized by said pressurizing means, from each liquid chamber to the major surface of a support in a state of a liquid droplet, a liquid cartridge connected to said emission means and operating as a supply source for supplying said recording liquid to said supply unit, and emission controlling means for controlling the driving of said pressurizing unit; wherein

said recording liquid contains a dye, a solvent for dispersing the dye, a surfactant containing an organic compound represented by the following chemical

formula 1:



where m and n are integers not less than 1, and a glycol ether having the vapor pressure at 20 °C not larger than 0.1 mmHg and the surface tension not larger than 35 mN/m, and wherein said recording liquid is emitted from said emission opening.

28. The liquid emission method according to claim 27 wherein said recording liquid is contained in an amount not less than 0.1 wt% and not larger than 5.0 wt% based on the weight of the total liquid and wherein said glycol ether is contained in an amount not less than 1 wt% and not larger than 20 wt% based on the total weight of the liquid.

29. The liquid emission method according to claim 27 wherein

a plurality of emission openings of said emission means are arranged side-by-side substantially in a line.